

SHERMAN, S.I., prof.; KUZ'MIN, D.S., dots.; ROZANOVA, L.M.; KISELEVA, A.N.;  
POVERGO, N.S.; VAKULENKO, A.D.

Comparative evaluation of the effectiveness of certain therapeutic  
methods in chronic leukemias; roentgen rays, radioactive phosphorus,  
urethan, embichin, arsenic, myleran. Report No.4 [with summary in  
English, p.61]. Probl.gemat. i perel.krovi 4 no.1:17-20 Ja-F '59.  
(MIRA 12:2)

1. Iz gematologicheskoy kliniki (zav. - prof. S.I. Sherman) Lenin-  
gradskogo ordena Trudovogo Krasnogo Znameni nauchno-issledovatel'-  
skogo instituta perelivaniya krovi (dir. - dots. A.L. Belyakov,  
nauchnyy rukovoditel' - chlen-korrespondent AMN SSSR prof. A.N. Fi-  
latov).

(LEUKEMIA, therapy,  
comparison of various radiol. & chem.  
methods (Rus))

SHERMAN, S.I., prof.; KUZ'MIN, D.S., dotsent; ROZANOVA, L.M.; KISELEVA, A.N.:  
POVERGO, N.S.; VAKULENKO, A.D.

Comparative evaluation of the effectiveness of certain therapeutic  
methods in chronic leukemias; roentgen rays, radioactive phosphorus,  
urethane, embichine, arsenic, myleran. Report No.5: Probl. gemat. i  
perel. krovi 4 no.5:14-18 My '59. (MIRA 12:7)

1. Iz gematologicheskoy kliniki (zav. - prof. S.I. Sherman) Leningrad-  
skogo ordena Trudovogo Krasnogo Znameni nauchno-issledovatel'skogo in-  
stituta perelivaniya krovi (dir. - dotsent A.D. Belyakov, nauchnyy  
rukovoditel' - chlen-korrespondent AMN SSSR prof. A.I. Pilatov). ,  
(LEUKEMIA, therapy,  
comparison of various methods (Rus))

KUZ'MIN, D.S.

Replacement blood transfusion in radiation sickness; experimental studies. Med.rad. 4 no.6:82-84 Je '59. (MIRA 12:8)

1. Iz rentgenologicheskogo otdeleniya Leningradskogo ordena Trudovogo Krasnogo Znameni nauchno-issledovatel'skogo instituta perelivaniya krovi Ministerstva zdravookhraneniya RSFSR (nauchnyy rukovoditel' - chlen-korrespondent AMN SSSR prof.A.N.Filatov).

(BLOOD TRANSFUSION, exper.

exchange-replacement transfusion in exper.  
radiation sickness (R<sub>15</sub>))

(ROENTGEN RAYS, eff.

exchange-replacement blood transfusion in  
exper. radiation sickness (R<sub>15</sub>))

SHERMAN, S.I., prof.; KUZ'MIN, D.S., dotsent; ROZANOVA, L.M.; POVERGO, N.S.

Treatment of patients with chronic myelosis with myelosan in  
association with roentgen rays. Terap.arkh. 32 no.9:32-36 '60.  
(MIRA 14:1)

1. Iz gematologicheskoy kliniki (zav. - prof. S.I. Sherman)  
Leningradskogo ordena Trudovogo Krasnogo Znameni nauchno-  
issledovatel'skogo instituta perelivaniya krovi (nauchnyy ruko-  
voditel' - chlen-korrespondent AMN SSSR prof. A.N. Filatov).  
(BUSULFAM) (LEUKEMIA)

USSR  
KUZ'MIN, D.S., dotsent; GRAPMAN, E.M.

Arteriography of the lower extremities; surgey of the Soviet  
and foreign literature. Vest.khir. no.6:109-113 '62.

(MIRA 15:11)

1. Iz rentgenologicheskogo otdela (rukovod. - dotsent D.S.  
Kuz'min) Leningradskogo ordena Trudovogo Krasnogo Znameni  
nauchno-issledovatel'skogo instituta perelivaniya krovi  
(nauchn. rukovod. - prof. A.N. Filatova).

(ANGIOGRAPHY) (EXTREMITIES, LOWER--RADIOGRAPHY)

FILATOV, A.N., prof. (Leningrad); KUZ'MIN, D.S., starshiy nauchnyy  
soтрудnik (Leningrad)

Review of K.B.Tikhonov's book "Angiography." Vest. khir. 90  
no.3:128-129 Mr'63. (MIRA 16:10)  
(ANGIOGRAPHY) (TIKHONOV, K.B.)

KUZ'MIN, D.S., dotsent; GREBENSHCHIKOVA, L.A., kand. med. nauk; FANTGOF, P.D.

Venography of the lower extremities. Vest. khir. no.7:116-121 J1 '64.  
(MIRA 18:4)

1. Iz khirurgicheskoy kliniki (rukovoditel' - prof. A.N.Filatov) i rentgenologicheskogo otdela (rukovoditel' - dotsent D.S.Kuz'min) Leningradskogo ordena Trudovogo Krasnogo Znameni nauchno-issledovatel'skogo instituta perelivaniya krovi (dir. - dotsent A.D.Belyakov). Adres: Leningrad, S-24, 2-ya Sovetskaya ul. 16, Institut perelivaniya krovi.

KUZ'MIN, D.S., dotsent; TIKHOMIROVA, T.I.

X-ray diagnosis of hemorrhage in hemophilia; a review of Soviet  
and foreign literature. Vest. khir. no.10:141-145 '64. (MIRA 19:1)

1. Iz Leningradskogo otdela Trudovogo Krasnogo Znamini nauchno-  
issledovatel'skogo instituta perelivaniya krovi.



KUZMIN, D.V.  
USSR/Electricity - Dielectrics

G-2

Abs Jour : Ref Zhur - Fizika, No 3, 1957, No 6934

Author : Kuz'min, D.V.

Title : Fonderomotive Forces of the Field in Electric Separation Processes

Orig Pub : Uch. zap. Mosk. gor. ped. in-t, 1955, (1956), 50, 75-95

Abstract : The author determines the moment of the electric dipoles induced on solid particles of differing dielectric constants, conductivities, and shapes. Cases of d-c and a-c electric fields are considered. An estimate is made of the separability of solid particles in an electric field.

Card : 1/1

*KUZ'MIN, D. V.*  
USSR/Electricity - Dielectrics

G-2

Abs Jour : Referat Zhur - Fizika, No 5, 1957, 12109  
Author : Kuz'min, D.V.  
Inst : Pedagogical Institute imeni V.P. Potemkin, Moscow, USSR  
Title : Dipole Moments of Dielectric and Semiconductor Particles.  
Orig Pub : Zh. tekhn. fiziki, 1956, 26, No 9, 1880-1883

Abstract : The author solves the problem of determining the dipole moment induced by an external field in a sphere with dielectric constant  $\epsilon_1$  and conductivity  $\sigma_1$ , immersed in a medium with  $\epsilon_2$  and conductivity  $\sigma_2$ . The uniform external field is turned on at the instant  $t = 0$ , and at  $t > 0$  it is assumed to depend harmonically on the time, with a specified frequency  $\omega$ . The general solution of the problem contains a term that decays exponentially with time, which determines the initial course of the

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USSR/Electricity - Dielectrics

G-2

Abs Jour : Ref Zhur - Fizika, No 5, 1957, 12109

polarization of the sphere. In addition, the solution contains a term harmonic in time. It varies with the frequency of the external field with a phase shift, and determines the polarization of the sphere under stationary conditions. Although the final expressions are elementary, they are nevertheless quite cumbersome and become simplified under various particular cases ( $\gamma_2 = 0$  or  $\omega = 0$  etc.).

Card 2/2

KUZ'MIN, D.V.

Dielectric screens. Uch.zap.Mosk.gor.ped.inst. 85:45-56 '58.  
(Electrostatic separators) (MIRA 14:10)

MIKHAYLOV, V.I.; KUZ'MIN, D.V.

Investigating the aerodynamic resistance of workings under  
mine conditions. Trudy MakNII 15:58-68 '63.

(MIRA 17:11)

MATORIN, I.P.; KUZ'MIN, D.Ye.

Modernization of drop hammers. Mashinostroitel' no.6:15  
Je '63. (MIRA 16:7)  
(Forging machinery)

ACC NR: AP6028549

SOURCE CODE: UR/0280/66/000/003/0180/0188

AUTHOR: Kuz'min, E. A. (Kiev); Sitko, N. Ya. (Kiev)

ORG: none

TITLE: A method for the synthesis of automatic control with digital correction units

SOURCE: AN SSSR. Izvestiya. Tekhnicheskaya kibernetika, no. 3, 1966, 180-188

TOPIC TAGS: linear automatic control system, correction circuit, digital computer

ABSTRACT: The authors apply the frequency methods employed in the synthesis of continuous systems to the synthesis of discrete automatic systems, and specifically to such systems as incorporate digital correcting devices. A method, based on frequency characteristics, is proposed for the synthesis of these systems. Among the distinguishing aspects of this method are its relative simplicity and the fact that, unlike other methods, it makes allowance for the presence of the correcting devices discussed. This is particularly helpful when designing systems having rigid requirements with respect to the weight and size of the control element. A special feature of the method is the fact that the entire synthesis is carried out in a region of relative frequencies, with the quantizing period  $T$  chosen during one of the final stages. Thus,  $T$  can be used as a variable in the selection of the digital correction device. Machine-induced delay is not considered in the exposition of the method, inasmuch as it is assumed that the computer is working on a number of problems, with the delay

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ACC NR: AP6028549

introduced by a single problem relatively small with respect to the quantizing period.  
Orig. art. has: 18 formulas, 2 tables, 6 figures.

SUB CODE: 13.09/ SUBM DATE: 26Oct64/ ORIG REF: 004/ OTH REF: 001

Card 2/2




L 14471-66 EWT(m)/ETC(F)/EWG(m)/T/EWP(t)/EWP(b) IJP(c) RDW/JD  
 ACC NR: AP5027841 (A) SOURCE CODE: UR/0020/65/165/001/0088/0090 35  
 AUTHOR: Kuz'min, E. A.; Belov, N. V. (Academician) 23  
 ORG: Gor'kiy State University im. N.I. Lobachevskiy (Gor'kovskiy gosudarstvennyy universitet);  
 Institute of Crystallography, Academy of Sciences SSSR (Institut kristallografiy Akademii  
 nauk SSSR) B  
 TITLE: Crystal structure of the simplest La and Sm silicates ~1  
 SOURCE: AN SSSR. Doklady, v. 165, no. 1, 1965, 88-90  
 TOPIC TAGS: samarium compound, lanthanum compound, silicate, crystal structure  
 analysis  
 ABSTRACT: Single-crystal crystal chips of the compounds  $\text{La}_2\text{O}_3 \cdot \text{SiO}_2$ ,  $\text{La}_2\text{O}_3 \cdot 2\text{SiO}_2$ ,  
 $\text{Sm}_2\text{O}_3 \cdot \text{SiO}_2$ , and  $\text{Sm}_2\text{O}_3 \cdot 2\text{SiO}_2$ , synthesized at the Institute of Silicate Chemistry,  
 AN SSSR Leningrad (Institut khimii silikatov), were structurally analyzed by x-ray  
 diffraction. The unit cells of the hypothetical compounds  $\text{La}_2\text{O}_3 \cdot \text{SiO}_2$  and  $\text{La}_2\text{O}_3 \cdot 2\text{SiO}_2$   
 were found to be completely identical, indicating that these compounds are identical; the  
 same applied to the Sm silicates. Powder patterns of the La and Sm silicates were  
 strikingly similar to those of britholite, a structural analog of apatite. The atomic  
 Card 1/2 UDC: 548.7

L 14471-66

ACC NR: AP5027841

coordinates and interatomic distances of the two silicates were determined. The existence of compounds of the composition  $\text{La}(\text{Sm})_{4.67}[\text{SiO}_4]_3\text{O}$  was confirmed. The single-crystal chips of the silicates were kindly provided by N. A. Toropov and I. A. Bondar'. Orig. art. has: 2 tables. 2

SUB CODE: 20 / SUBM DATE: 11Aug65 / ORIG REF: 009 / OTH REF: 004

  
Card 2/2

KUZ'MIN, F., inzh.

New nitro-lacquer coatings on passenger ships. Mor. flot  
23 no.9:34-36 S 16:11 (MIRA 16:11)

KUZMIN, Fedor Kuz'mich; YAKOVLEV, Grigoriy Ivanovich; SEMENENKO, P.I.,  
red.; POZICHEV, A.G., red. izd-va; BOL'SHAKOV, V.A., tekhn.  
red.

[Progressive method for cutting trapezoid screw thread] Prog-  
ressivnyi metod narezaniia trapetseidal'noi rezby. Leningrad,  
1962. 11 p. (Leningradskii Dom nauchno-tekhnicheskoi propa-  
gandy. Opyt novatorov. Seriya: Mekhanicheskaiia obrabotka metal-  
lov, no.4) (MIRA 15:3)

(Screw cutting)

L 44724-66 EWT(m)/EMP(j)/EWP(t)/ETI IJP(c) JD/WB/RM

ACC NR: AR6022392 (N) SOURCE CODE: UR/0398/66/000/003/V009/V009

AUTHOR: Alyayev, A. N. ; Kuz' min, F. M.

36

B

ORG: none

TITLE: Corrosion protection of marine structures

SOURCE: Ref. zh. Vodnyy transport, Abs. 3V64

REF SOURCE: Proizv. tekhn. sb. Tekhn. upr. M-va rechn. flota RSFSR, no. 1(45), 1965, 65-73

TOPIC TAGS: corrosion protection, marine equipment, paint, marine engineering, surface scaling

ABSTRACT: Requirements are established for the preparation of surfaces prior to the application of synthetic paints. Traces of scale and other foreign matter which are found between the metal and the paint layer reduce the service of the coating 4-5 times. The brands of prime coats (fillers) and enamels for exterior and interior surfaces are listed. Specifications for standard consumption of paints and varnishes and schedules for periodic repainting of surfaces are established. [Translation of authors' abstract]

[AM]

SUB CODE: 13/ SUBM DATE: 7 1965 REF: none

REF: none

LS  
Card 1/1

<sup>M</sup>  
KUZ'MIN, F., insh.

Lacquer coating for the protection of nonferrous metals  
from oxidation. Rech.transp. 19 no.7:43 J1 '60.

(MIRA 13:8)

(Nonferrous metals--Corrosion)  
(Protective coatings)

KUZ'MIN, F.M., inzh.

Experience with light alloys. Sudostroenie 27 no.12:56-58 D  
'61. (MIRA 15:1)  
(Light metals) (Shipbuilding)

KUZ'MIN, F.<sup>M</sup>, inzh.; MATASOV, Yu., inzh.

Reconditioning lacquer coatings on river passenger ships. Rech.  
transp 21 no.4:23-25 Ap '62. (MIRA 15:4)

1. Gor'kovskoye tsentral'noye konstruktorskoye byuro.  
(Ships—Maintenance and repair)



KUZ'MIN, Fedor Mikhaylovich; KUDRYASHOV, P.A., retsenzent;  
VOYTSEKHOVSKIY, V.I., red.

[Use of synthetic materials in ship repairs] Opyt primeneniia sinteticheskikh materialov v sudoremonte. Moskva, Izd-vo "Transport," 1964. 74 p. (MIRA 17:6)

KUZ'MIN, G. A., Candidate of Agric Sci (diss) -- "The role of fertilizers in raising the yield of potatoes in Kirgizia". Frunze, 1959. 20 pp (Min Agric USSR, Kirgiz Agric Inst), 280 copies (KL, No 21, 1959, 117)

KUZMIN, G.A.

Analysis of balancing four-row radial engines. Trudy KAI 22:62-84  
'49. (MIRA 10:6)  
(Airplanes--Engines)

KUZ'MIN, G.A.

Designing intake ports for sleeve-valve engines. Trudy KAI 23:143-  
171 '49. (MIRA 10:6)

(Airplanes--Engines)

S/123/59/000/008/010/043  
A004/A002

Translation from: Referativnyy zhurnal, Mashinostroyeniye, 1959, No. 8, p. 31,  
# 28836

AUTHORS: Kuz'min, G. A., Demidovich, V. M.

TITLE: Investigating the Operation of High-Speed Ball Bearings Under  
Conditions of Ample Lubrication || 17

PERIODICAL: Tr. Kazansk. aviats. in-ta, 1958, Vol. 33-34, pp. 265-290

TEXT: Bibliographic entry

✓

Card 1/1

SOV/123-59-16-66764

Translation from: Referativnyy zhurnal. Mashinostroyeniye, 1959, Nr 16, p 409 (USSR)

AUTHOR: Kuz'min, G.A.

TITLE: The Gear Ratio and Efficiency of Differential Reductors of Turbo-Prop Engines

PERIODICAL: Tr. Kazansk. aviats. in-ta, 1958, 33 - 34, 291 - 315

ABSTRACT: Four layouts of differential reductors (DR) for turbo-prop engines with coaxial screws were investigated: one-stage DR with single and double row planet pinions, two-stage DR, and DR and locked gear.

Card 1/1

S/123/60/000/010/009/011  
A004/A001

Translation from: Referativnyy zhurnal. Mashinostroyeniye, 1960, No. 10, p. 313,  
# 51287

AUTHOR: Kuz'min, G.A.

TITLE: On the Problem of the Effect of Rotor Shaft Mass on Its Critical  
Revolutions

PERIODICAL: Tr. Kazansk. aviats. in-ta, 1958, Vol. 38, pp. 295-300

TEXT: The author presents the results of theoretical investigations concerning the effects of the proper shaft mass on the critical rotor revolutions. Double-bearing shafts with disks, placed between the bearings and cantilever-like, were investigated. Variations of the critical revolutions of the rotor shaft, when its mass is taken into account, depend on the shaft weight-to-disk weight ratio and on the location of the disks relative to the bearings. ✓

K.Yu.A.

Translator's note: This is the full translation of the original Russian abstract.

Card 1/1

S/123/61/000/014/041/045  
A004/A101

AUTHOR: Kuz'min, G.A.

TITLE: Calculating the strength of turbomachine disks being in an elastic state

PERIODICAL: Referativnyy zhurnal. Mashinostroyeniye, no.14, 1961, 28, abstract 14I198 ("Tr. Kazansk. aviats. in-ta", 1960, no. 55, 75 - 90)

TEXT: The author suggests a simplified method of calculating disks, which is based on the solution of a differential equation obtained for disks for invariable thickness. This method differs from the known calculation by the "Method of final differences" in that even in the case of spots with abrupt transitions the rated number of cross sections can be considerably reduced. The author describes the derivation of calculation equations for disks of invariable thickness. He investigates the transition conditions from one sector to the other, and presents an example of calculating a turbine disk with variable temperature field and peripheral load from the blades. ←

I. Kuznetsov

[Abstracter's note: Complete translation]

Card 1/1



KUZ'MIN, G.A.

Taking out sections in the plane of rotation of rotor blades of  
axial-flow compressors and turbines. Trudy KAI no.66:43-47 '61.  
(MIRA 16:10)

(Turbomachines--Fluid dynamics)

KUZ'MIN, Georgiy Anatol'yevich; TYUTYUNOV, V.A., inzh., retsenzent;  
YANOVSKIY, I.L., inzh., red.[deceased]; AGEYCHEVA, I.S.,  
red. izd-va; ROZHIN, V.P., tekhn. red.

[Design of aircraft engines] Konstruktsiia aviatsionnykh dviga-  
telei. Moskva, Oborongiz, 1962. 442 p. (MIRA 16:2)  
(Airplanes--Engines)

AM4007932

BOOK EXPLOITATION

S/

Kuz'min, Georgiy Anatol'yevich

Design of aircraft engines (Konstruktsiya aviatsionny\*kh dvigateley)  
Moscow, Oborongiz. 1962, 442 p. illus., biblio., fold diagrs. Errata slip inserted. 7000 copies printed. Textbook designed for aviation technicians.

TOPIC TAGS: aircraft engine design, gas turbine engine, reciprocating engine, engine component, aviation material, aviation metal

PURPOSE AND COVERAGE: This textbook is intended for students in aviation technicians and may be useful to industrial engineers and technicians interested in aircraft engine design and students studying related subjects at technical institutions of higher learning. The book covers the design of modern aircraft engines and their components. The special design features and typical designs of compressors, turbines, combustion chambers, and crankgear mechanisms, are described. Methods of computing component strength and means of balancing rotating parts are given.

~~Cord 1/10~~

ACCESSION NR: AT4024394

S/2529/61/000/066/0043/0047

AUTHOR: Kuz'min, G. A.

TITLE: Offsets of axial compressor and turbine blade sections in a plane of rotation

SOURCE: Kazan. Aviatsionnyy institut. Trudy\*, no. 66, 1961. Aviatsionnyye dvigateli (Aircraft engines), 43-47

TOPIC TAGS: blade offset, compressor blade, turbine blade, stress, bending stress, gas force, centrifugal force, gravity, blade size, loading

ABSTRACT: In order to decrease bending stresses arising from the action of gas forces on the working blades of axial compressors and turbines, offsets of sections are applied in the direction of the gas force action, and their magnitudes are expressed by the sectional center of gravity coordinates  $x$  and  $y$  (see Fig. 1 of the Enclosure). Because of the offsets, bending moments arise due to centrifugal forces and counteracting bending moments arise due to gas forces. Offsets of compressor blades are usually applied only in the plane of rotation. However, for turbine blades they are also applied in the axial plane. A linear law is the simplest for the offsets; in such case the blade axis remains straight and is only inclined with respect to the coordinate axis "or" passing through the

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Cord

ACCESSION NR: AT4024394

center of gravity of the blade root section (see Fig. 1). In the plane of rotation "xor", the inclination of the blade axis is equivalent to a parallel displacement  $\Delta$  of it with respect to its initial location on the rotor disk. This displacement is done in the direction of rotation at the compressors (see Fig. 2 of the Enclosure) and opposite to the direction of rotation in the case of a turbine (see Fig. 3 of the Enclosure). The blade and the root can remain coaxial. With the assumption of a linear distribution of the cross-sectional area along the blade, the following expression was derived for the displacement  $\Delta$  in the case of a compressor:

$$\Delta = \frac{6g\beta_y My}{\gamma^2 L^2 A_R (1 + 2 \frac{A_T}{A_R})}$$

where  $\beta_y$  is the unloading coefficient in plane of rotation,  
 $\gamma$  is the specific weight of the blade material,  
 $\omega$  is the angular velocity of rotation,  
 $A_R$  is the blade root section area,

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ACCESSION NR: AT4024394

$A_T$  is the blade tip section area,

$g$  is the acceleration of gravity,

$L$  is the blade length, and

$M_y$  is bending moment at the root from the gas forces in the plane of rotation.

At the turbine working blades the distribution of the cross-sectional area along the length usually follows a more complex law, frequently not represented by an analytical expression. Therefore, for a stress analysis of the turbine blades the author proposes a subdivision by section into  $k$  divisions. The numbering of sections was done from the tip toward the root; to the tip itself station 0 was assigned. Expression (2) has been derived for the case of a turbine:

$$\Delta = \frac{4g\beta_y M_y}{\gamma \omega^2 A (1 - 2R_R - \frac{B}{C})} \quad (2)$$

where

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ACCESSION NR: AT4024394

where

$$B = \sum_{i=1}^{i=k} \left[ (A_{i-1} + A_i) (R_{i-1}^2 - R_i^2) \right]$$

(3)

$$C = \sum_{i=1}^{i=k} \left[ (A_{i-1} + A_i) (R_{i-1}^2 - R_i^2) (R_{i-1} + R_i) \right]$$

and A is the cross section area of the blade,

R is the radius of rotation,

subscript R refers to the root section,

subscript i refers to an arbitrary section, and

subscript k refers to the last section at root,

and the other symbols are as before.

To allow for various working systems of a turbine, using a value of the unloading coefficient  $\beta_y = 0.5$  to  $0.6$  was recommended. The linear law used for the offsets of blade sections, assures the desired unloading only at one section. At other sections,  $\beta_y$  has

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ACCESSION NR: AT4024394

different values. While at compressor blades the least margin of safety occurs at the root section, at turbine blades the maximum stresses are at a section  $n$ , at a distance 0.25 to 0.5  $L$  from the root section. Hence, it may be advisable to apply the coefficient  $\beta_y$  to section  $n$ . For this purpose, in the expressions (3) the upper limit  $i-k$  of the summations should be replaced by  $i=n$ ; in the expression (2) the bending moment  $M_y$  should be used for section  $n$  and  $R_R$  should be replaced by  $R_n$ . Orig. art. has: 3 figures and 17 formulas.

ASSOCIATION: Aviatsionnyy institut, Kazan (Aviation Institute)

SUBMITTED: 15Apr61

DATE ACQ: 15Apr64

ENCL: 03

SUB CODE: PR

NO REF SOV: 001

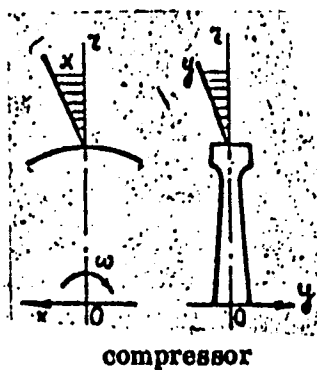
OTHER: 000

Card 5/8

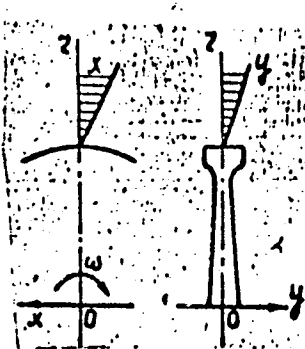


ACCESSION NR: AT4024394

ENCLOSURE: 01



compressor



turbine

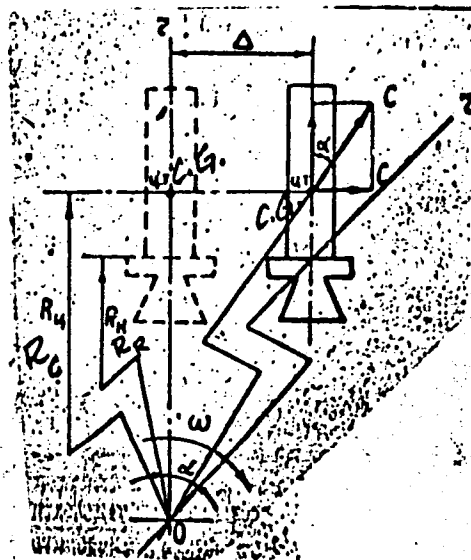
Fig. 1 - Schematic illustration of the linear offset distribution of blade sections in axial compressors and turbines

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ACCESSION NR: AT4024394

ENCLOSURE: 02

Fig. 2 - The parallel displacement of an axial compressor blade in the plane of rotation

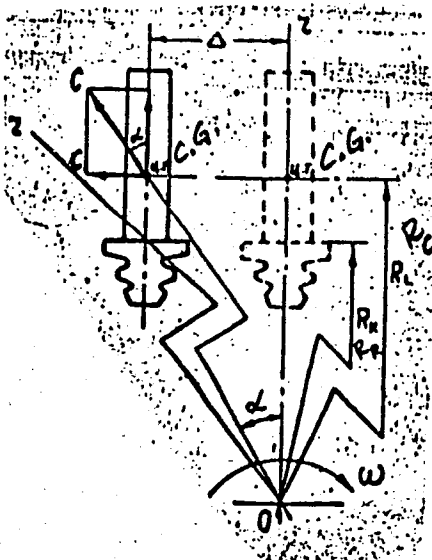


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ACCESSION NR: AT4024394

ENCLOSURE: 03

Fig. 3 - The parallel displacement of an axial turbine blade in the plane of rotation.



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**AUTHOR: Kuz'min, G.A.**

**TITLE: Thermal state of gas turbine disks and the temperature stresses therein**

**CITED SOURCE: Tr. Kazansk aviats in-ta vv'p. 76, 1963, 74-88**

**TOPIC TAGS: gas turbine; gas turbine disk; turbine disk bolt stress; turbine disk  
temperature; turbine disk temperature stresses; turbine disk temperature stresses  
analysis; turbine disk temperature stresses analysis**

**REMARKS: The paper describes the results of a study of the thermal state of the**

**inertia of disks and the possibility of significantly exceeding allowable stress limits  
Results are given for gas turbine disks and the possibility of the thermal fatigue of  
Card 2**



DMITRIYEV, S.V.; YEGOROV, G.A.; KUZ'MIN, G.A.; MITROPANOV, I.Ya.

Position pulse-phase programmed control system. Trudy KAI no.78:11-17  
'63. (MIRA 18:10)

KUZ'MIN, G.A.

Thermal conditions and thermal stresses in gas-turbine disks.  
Trudy KAI no.76:74-88 '63. (MIRA 19:2)

1. Submitted September 15, 1962.

L 20711-66 ENT(d)/ENT(l)/ENT(m)/ENP(w)/ENP(r)/EPF(n)-Z/T-2/ENP(k)/ETC(m)-6/ENP(v)  
 ACC NR: AT6007559 JD/WW/EM UR/2529/63/000/076/0074/0088

AUTHOR: Kuz'min, G.A.

ORG: Kazan Aeronautical Institute, Kazan (Kazanskiy aviatsionnyy institut)

TITLE: Thermal state of <sup>23</sup>gas turbine rotor disks, and their temperature stresses

SOURCE: Kazan. Aviatsionnyy institut. Trudy, no 76, 1963. Aviatsionnyye dvigateli (Aircraft engines), 74-88

TOPIC TAGS: gas turbine engine, turbine rotor, thermal stress, turbine disk, thermal analysis

ABSTRACT: <sup>21</sup>Interest in the thermal states of <sup>26</sup>gas turbine rotors is due to the considerable thermal stresses generated by non-uniform disk heating. In this paper, both the stationary and transient thermal states were considered. Thermal analysis was limited to the convective heat exchange, neglecting the relatively insignificant contributions of radiation and heat conductivity. Analysis of the stationary case was facilitated by assumptions of a thin rotor disk of uniform thickness and symmetrical heat dissipation, thus admitting a direct solution in terms of modified Bessel functions. Comparison with previously published results of temperature distribution measurements showed a satisfactory correspondence. Solutions for the non-stationary case of the engine start were obtained by a graphical method. It was noted that the rotor disk periphery temperature reaches its maximum (600°C.) soon after the engine start, while the

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ACC NR: AT6007559

central portion approaches its maximum temperature at a much slower rate. Thus the turbine rotor is seen to possess a high thermal inertia, and the maximum temperature difference between its periphery and center occurs soon after the engine start. This means that little thermal stress relief can be obtained by prolonging engine warm-up. Radial and circular stresses were calculated for theoretically and for experimentally determined data. Stress distributions are presented in graphs a) as pure thermal, and b) as total (dynamic plus thermal) stresses. At the periphery, the tensile dynamic stresses can significantly reduce the effect of compressive thermal stresses, and increase the tensile stresses in the central part contributed by the temperature gradient. Numerous other aspects of stress dependence upon engine temperature distributions due to various operational aspects are discussed. Hints for design optimization are presented. Orig. art. has: 8 figures and 16 formulas.

SUB CODE: 21

SUBM DATE: 15Sep62

ORIG REF: 007

OTH REF: 001

Card

2/2 12K

KUZMIN, G. G.

"Gravitational Potential of the Galaxy and the Third Integral of Stellar Motion,"  
Izv. AN EstSSR, No 3, 1943, pp 368-383

The curve of circular velocity over which radial accelerations are computed is used for determining the component of potential in radial direction. Using the obtained radial accelerations and assuming that surfaces of uniform tensions are spheroidal, the author computed values of the surface density of the Galaxy. The mass of the Galaxy is evaluated to be  $10^{11}$  solar masses. The author introduces the third integral of motion for explaining the triaxial ellipsoid of stellar velocities. (RZhAstr, No 4, 1955)

SO: Sum. No. 568, 6 Jul 55

USSR/Medicine - Encephalomyelitis, May 50  
Equine  
Horses, Diseases

"Problem of the Treatment of Infectious Equine Encephalomyelitis by Khavlin's Method," G. G. Kuz'min, Dr Vet Med, Groznyy, Stalin Rayon, 1 p

"Veterinariya" No 5

Describes variation of V. P. Khavlin's treatment ("Veterinariya" No 7, 1946) which resulted in recovery of 18 out of 19 cases of infectious encephalomyelitis in horses. Treatments consist of intravenous injection of 200 ml of 15% solution

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USSR/Medicine - Encephalomyelitis, May 50  
Equine (Contd)

of sodium chloride (20% of Khavlin's original method), followed in 30 min by injection of equal amount of mixture containing 100 ml of 30% urotropine, 20 ml of 20% camphor oil, 20 ml of ethyl ether, and 30 drops of formalin in region of atlas, shoulder, and middle rib on right side.

160T59

KUZ'MIN, G. G.

KUZMIN, G. G.; ALEO, Kh. Ya.

Stars, Variable

Eclipsing variable SPZ 684 Cephei, Astron. tsir. No. 125, 1952.

9. Monthly List of Russian Accessions, Library of Congress, May 1953. Unclassified.

RUZHIN, S. G.

Third Integral of Stellar Motion and Dynamics of the Stationary Galaxy.  
Publikatsii Tartuskoj Astron. Observ., No 5, 1953, 332-368.

The introduction of a third integral, besides the familiar ones of energy and areas, is suggested. In the expression of this quadratic integral the first two terms represent the sum of squares of angular moments around two mutually perpendicular axes in the plane of the galaxy, and the third term is of the type of the energy integral along the z-axis. The author intends to continue his theory. (RZhAstr, No 9, 1954)

SO: W-31128, 11 Jan 55

KUZMIN, G.G.

Model of a stationary Galaxy permitting a triaxial distribution of velocities. Astron. zhur. 33 no.1:27-45 Ja-F '56.(MLRA 9:6)

1. Tartuskaya astronomicheskaya observatoriya Akademii nauk  
Estonskoy SSR.

(Astronomical models)

KUZMIE, G.; RAUDSAAR, Kh.

Preliminary data on observations of Arend-Roland's comet at the Tartu Astronomical Observatory of the Academy of Sciences of Estonia. Astron.tsir. no.180:9-10 My '57. (MIRA 13:4)

1. Tartuskaya astronomicheskaya observatoriya AN ESSR.  
(Comets--1956)

KUZMIN, G.G.; ELSALU, Kh. [Elsalu, H.]

Photographic observations of supernova in NGC 4496. Astron.  
tsir. no. 214:9-10 S '60. (MIRA 14:1)

1. Tartuskaya astronomicheskaya observatoriya AN ESSR.  
(Stars, New)



45199  
S/269/63/000/001/013/032  
A001/A101

AUTHOR: Kuzmin, G. G.

TITLE: On changes in dispersion of star velocities

PERIODICAL: Referativnyy zhurnal, Astronomiya, no. 1, 1963, 40 - 41,  
abstract 1.51.309 ("Publikatsii Tartusk. astron. observ.", 1961,  
v. 33, no. 5 - 6, 351 - 370, English summary)

TEXT: The author considers the effect of a change of gravitational potential and irregular gravitational forces on dispersion of velocities and positions of stars. The regular potential is assumed to be rotationally symmetric and slowly varying with time. Only very flat subsystems of the Galaxy are considered. Formulae are derived for the change of dispersion taking place due to the change of gravitational potential, and also analogous formulae for the mean rate of orbit displacement. These formulae agree with Lindblad's "adiabatic" theorem. The theory is similar to Chandrasekhar's theory of non-steady stellar systems. Further formulae are derived for changes in time of dispersions and for systematic shifts due to irregular gravitational forces. According to Gurevich,

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On changes in dispersion of star velocities

5/269/63/000/001/013/032  
A001/A101

Spitzer and Schwarzschild, massive clouds of diffuse matter and stars are assumed to be a source of irregular forces. Irregular forces may cause small radial motions of individual subsystems, but for the Galaxy as a whole this effect must be insignificant. It can be supposed that the ratio of velocity dispersion tends to a certain equilibrium value. In this case, the following relation is obtained:  
 $\sigma_z^2 = \sigma_R^2 + \sigma_\theta^2$ , which agrees with observational data. There are 7 references.

From author's summary

[Abstracter's note: Complete translation]

Card 2/2

KUZMIN, G.G.

Present stage and some current problems in stellar dynamics.  
Trudy Astrofiz. inst. AN Kazakh. SSR 5:11-22 '65.

Hydrodynamics of stellar systems. Ibid.:70-77

(MIRA 18:6)

1. KUZ'MIN, G. I.
2. USSR (600)
4. Mechanics
7. Discussing the principal problems of determining the basic conception of mechanics.  
Izv.AN SSSR. Otd.tekh.nauk no. 10, 1952.

9. Monthly Lists of Russian Accessions, Library of Congress, March 1953, Unclassified.

KUZ'MIN, G.I., inzh.

Experimental dynamic characteristics of a turbogenerator with intermediate steam superheating. Teploenergetika 10 no.4:14-17 Ap '63.  
(MIRA 16:3)

1. Vsesoyuznyy teplotekhnicheskiy institut.  
(Turbogenerators)

KUZ'MIN, G.I., inzh.; PANFILOV, V.A., inzh.; RUBIN, V.B., kand.tekhn.nauk

Regulation of the power of large turbogenerators. Elek. sta.  
36 no.2:35-39 F '65. (MIRA 18:4)

RUBIN, V.B., kand. tekhn. nauk; KUZ'MIN, G.I., inzh.

Calculation of the dynamics of the steam channel of a boiler and turbine unit. Teploenergetika 11 no.8:8-13 Ag '64. (MIRA 18:7)

1. Vsesoyuznyy teplotekhnicheskiy institut.

3C

L 23594-66 EWT(d)/EWT(m)/EWP(v)/EWP(k)/EWP(h)/EWP(l)

ACC NR: AP6002602

(A)

SOURCE CODE: UR/0286/65/000/023/0098/0098

AUTHORS: Bogomolov, S. P.; Klement'yev, V. G.; Estrin, M. I.; Loginov, Ye. A.;  
Kuz'min, G. I.; Zemzerov, S. N.; Gusev, A. I.; Fedorova, Ye. V.

27  
B

ORG: none

TITLE: Machine for cutting joints in freshly laid concrete layers. Class 84,  
No. 176831

14

15

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 23, 1965, 98

TOPIC TAGS: concrete, ~~building machine~~ construction machinery

ABSTRACT: This Author Certificate presents a machine for cutting joints in freshly laid concrete layers. The machine includes a frame mounted on travelling carriages movable along rails and vibro-knives for cutting longitudinal and transverse joints. To provide for possible cutting of joints in the protective covering of channels and applying film-forming materials on it, the vibro-knife for cutting transverse joints is mounted for possible motion along the frame. Discharge tanks and a gear pump are mounted on the frame and are connected by tubing to distributive nozzles and valves which are controlled by handles and a

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UDC: 626.174.002.5

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L 23594-66

ACC NR: AP6002602

system of levers (see Fig. 1). To provide for operation on channels with

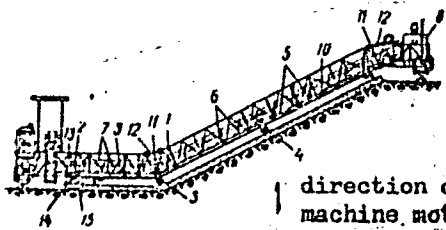


Fig. 1. 1 - frame; 2 - vibro-knife for cutting transverse joints; 3 - vibro-knife for cutting longitudinal joints; 4 - distributive nozzles; 5 - distributive nozzle valves; 6 - system of levers; 7 - discharge tank; 8 - horizontal truss of frame; 9 - inclined truss of frame; 10 - horizontal hinges; 11 - screw devices; 12 - working parts of vibro-knife for cutting transverse joints; 13 - vibro-knife support; 14 - cutting plates; 15 - vibration isolating plate.

differing slopes, the machine frame is made with horizontal and inclined trusses. The inclined truss is hinged to one of the travelling carriages and to the horizontal truss by horizontal hinges and screw devices. To provide for cutting of transverse joints of differing width and to reduce the vibration of the concrete during the joint cutting process, the vibro-knife for cutting transverse

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ACC NR: AP6002602

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joints is made with two working parts fastened to a support rotatable around a horizontal hinge. The support is mounted on a movable carriage. Each of the working parts of the vibro-knife consists of interconnected plates. The middle plate is vibration isolating and the outer plates are cutting (which vibrate depending on the direction of motion of the vibro-knife). To provide for precise setting of the machine at the location of the transverse joint, a limit switch is mounted on the machine frame. Orig. art. has: 1 diagram.

SUB CODE: 13/

SUBM DATE: 01Aug64

Card 3/3 BK

KUZ'MIN, Georgiy Leonidovich

(Moscow Order of Lenin and Order of Labor Red Banner Inst of Engineers of Railroad Transport imeni Stalin), Academic degree of Doctor of Technical Sciences, based on his defense, 9 June 1954, in the Council of the Moscow Machine-Tool and Tool Inst imeni Stalin, of his dissertation entitled: "Study of kinematic stability of plane surface machinery."

Academic degree and/or title: Doctor of Sciences

SO: Decisions of VAK, List no. 17, 9 Jul 55, Byulleten' MVO SSR, No. 17, Sept 56, Moscow, pp 9-16, Uncl. JPRS/NY-435

KUZ'MIN, G.L., doktor tekhn.nauk

Nonfunctioning connections of mechanisms. Trudy MIIT no.97:31-63  
'58. (MIRA 11:8)

(Mechanical movements)

KUZ'MIN, G.L., doktor tekhn.nauk

Dynamic analysis of the differential drive of tunneling machines.  
Trudy MIIT no.97:64-82 '58. (MIRA 11:8)  
(Excavating machinery)

KUZ'MIN, G.L., prof., GORDEYEV, A.S., dotsent

Analytical calculation for an "opaque" hydraulic torque converter.

Trudy MIIT no.128:77-91 '60.

(MIRA 13:7)

(Diesel locomotives--Hydraulic drive)

L 25464-66 EWP(k)/EWT(d)/EWT(m)/T/EWP(l)/EWP(v)/EWP(t)/EWP(h) IJP(c) JD/HM  
 ACC NR: AP6011214 SOURCE CODE: UR/0413/66/000/006/0052/0052

INVENTOR: Kuz'min, G. M.; Yekimov, V. V.; Bochkov, V. S.

ORG: none

TITLE: A device for capacitor resistance welding. Class 21, No. 179854

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 6, 1966, 52

TOPIC TAGS: silicon controlled rectifier, resistance welding, welding equipment

ABSTRACT: This Author's Certificate introduces a device for capacitor resistance welding. The unit contains a welding transformer, capacitor bank, charging transformer, control circuit supply transformer, rectifiers, overload diodes and master switch. Operating reliability and welding quality are improved by using silicon controlled rectifiers connected in circuits for charging and discharging the capacitor bank.

SUB CODE: 09, 13/ SUBM DATE: 21Oct64

Welding machine

UDC: 621.791.762.1.037

Card 1/1

SVIRIDOV, Eduard Fedorovich; KUZ'MIN, G.N., kand. tekhn. nauk,  
otv. red.; OZEROVA, Z.V., red.

[Comparative effectiveness of single-pulse radar direction finding systems] Sravnitel'naya effektivnost' neodimpul'snykh radiolokatsionnykh sistem pelengatsii. Leningrad, Sudostroenie, 1964. 115 p. (MIRA 18:2)



1. KUZ'MIN, G. P.; YAKUBSON, I. A.
2. USSR (600)
4. Dielectrics
7. Roller for testing dielectric rubber covers and runners. Elek. sta. 23 no. 10 1952.

9. Monthly List of Russian Accessions, Library of Congress, February 1953. Unclassified.

KUZMIN, G.P.; ZHARKOV, M.M., nauchnyy sotrudnik; ZHUKOV, B.A., nauchnyy sotrudnik; KLIMOV, N.A., nauchnyy sotrudnik; LEONT'YEV, V.N., nauchnyy sotrudnik; FEDYANIN, A.S., nauchnyy sotrudnik

Testing the combined chamber-shield method for mining thick steep coal seams in the "Taybinskaya" Mine. Ugol' 34 no.9:46-50 S '59. (MIR: 12:12)

1. Glavnyy inzhener tresta Kiselevskugol' Kuznetskiy basseyn (for Kuz'min). 2. Institut gornogo dela Sibirskogo otdeleniya AN SSSR (for all except Kuz'min).

(Kuznetsk Basin--Coal mines and mining)

SHIROKOV, A.P., kand.tekhn.nauk; KUZ'MIN, G.P., inzh.; KOSTYREV,  
A.P., inzh.

Using chain saws in mechanical coal mining. Mekh.i avtom.  
proizv. 15 no.8:37-38 Ag '61. (MIRA 14:9)  
(Coal mining machinery)

SHIROKOV, A.P., kand.tekhn.nauk; KUZ'MIN, G.P., inzh.

Using rod bolting for securing machinery in mines. Shakht.  
stroi. 6 no.1:24-25 Ja '62. (MIRA 14:12)

1. Kuznetskiy nauchno-issledovatel'skiy 'gol'nyy institut  
(for Shirokov).
2. Trest Kiselevskugol' (for Kuz'min).  
(Coal mining machinery)

KOTAKHOV, V.; KUZ'MIN, G.; SHIROKOV, A.

New use of rod bolting. Sov. shakht. 11 no.3:19 Mr '62.  
(MIRA 15:5)  
(Kuznetsk Basin--Coal mining machinery) (Mine roof bolting)

SHIROKOV, Anatoliy Pavlovich; SUMIN, Ivan Petrovich; KUZ'MIN,  
Gennadiy Petrovich; MINDELI, E.O., doktor tekhn. nauk,  
retsensent; DZHIMSHELEYSHVILI, Sh.P., otv. red.;  
SMIRENSKIY, M.M., red.izd-va; LOMILINA, L.N., tekhn.red.

[Manless extraction of coal in Kuznetsk Basin mines] Pri-  
menenie bezliudnoi vyemki uгля na shakhtakh Kuzbassa.  
Moskva, Gosgortekhnizdat, 1963. 174 p. (MIRA 17:1)

SHIROKOV, A.P., kand. tekhn. nauk; KUZ'MIN, G.P.

Using anchor bolting to support a cross holing in Kuznetsk Basin  
mines. Ugol' 38 no.1:23-25 Ja '63. (MIRA 13:2)

1. Kuznetskiy nauchno-issledovatel'skiy ugol'nyy institut (for  
Shirokov). 2. Glavnyy inzh. tresta Kiselevskugol' (for Kuz'min).

KUZ'MIN, G.P., inzh.; MIKHEYEV, L.Ye., inzh.; STEPANOV, Ye.A., inzh.;  
SHIROKOV, A.P., kand.tekhn.nauk

Automatic drive for coal saws. Mekh.i avtom.proizv. 18 no.3:  
20-21 Mr '64. (MIRA 17:4)



SHIROKOV, A.P., kand. tekhn. nauk; KUZ'MIN, G.P.; STEPANOV, Ye.A.;  
LIDER, V.A.

Industrial testing of the automatic drive of a coal saw.  
Ugol' 40 no.1:46-48 Ja '65. (MIRA 18:4)

1. Kuznetskiy nauchno-issledovatel'skiy ugol'nyy institut  
(for Shirokov, Stepanov, Lider). 2. Trest Kiselevskugol'  
(for Kuz'min).

ACC NR: AP7004909

(N)

SOURCE CODE: UR/0109/66/011/012/2248/2248

AUTHOR: Krynetskiy, B. B.; Kuz'min, G. P.; Shirokov, A. V.

ORG: none

TITLE: Cooled circulator for 3 cm wavelength

SOURCE: Radiotekhnika i elektronika, v. 11, no. 12, 1966, 2248-2248

TOPIC TAGS: microwave component, ferrite

ABSTRACT:

A Y-type circulator which operates with a quantum paramagnetic amplifier of 3 cm wave range is described. A garnet-structured calcium-vanadium ferrite was used as the active material. The ferrite has the following characteristics: the width of the ferromagnetic resonance line at temperatures of 300, 77, and 4.2K are 150, 280, and 340 gauss, respectively. A disk-shaped ferrite 8.25 mm in diameter inserted into a teflon washer with an outside diameter of 20 mm was installed at the center of the circulator. Operation of the circulator is satisfactory at temperatures ranging from 300 to 4.2K. At the temperature of liquid helium, maximum decoupling was 46 db, and direct losses amounted to approximately 0.8db. The bandwidth of the circulator at 20-db decoupling was 170 me. Orig. art. has: 1 figure.

[GS]

SUB CODE: 09/ SUBM DATE: 23May66/ ORIG REF: 001/ OTH REF: 001/ ATD PRESS: 5115  
Card 1/1 UDC: 621.375

SOV/135-59-11-3/26

18(5,7)

AUTHORS: Bagryanskiy, K.V., Candidate of Technical Sciences, Kuz'min, G.S.,  
and Kassov, D.S., Engineers

TITLE: Automatic Submerged-Arc Welding of Technically Pure Nickel with  
Ceramic Flux

PERIODICAL: Svarochnoye proizvodstvo, 1959, Nr 11, pp 6-8 (USSR)

ABSTRACT: Welding of nickel is usually performed by oxy-acetylene flame in  
a protective gas-atmosphere. Hand-arc welding of nickel, owing to  
the absence of electrodes providing the welds without pores and  
cracks, was found not applicable. It was established that the best  
method of nickel welding would be an automatic welding with melt-  
ing electrode under flux. The whole problem was that of the selec-  
tion of a proper flux to ensure obtaining welds, possessing the  
required properties. In 1956-58, the Department of Welding Prac-  
tice at the Zhdanov Metallurgical Institute carried out research  
on nickel welding, applying a number of industrial fluxes OSTs-45,  
FTs-6, AN-348A, AN-60 and AN-20. Experience has shown that all  
these fluxes are, owing to contamination of weld metal with iron,

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SOV/135-59-11-3/26

Automatic Submerged-Arc Welding of Technically Pure Nickel with Ceramic Flux

silicon, manganese, sulphur, phosphorus, oxygen and other admixtures, not suitable for nickel welding (Table 1). The need for working out a new flux which would give better results appeared. On the basis of numerous experiments, such a flux was finally found; it is an agglomerated flux, the chemical composition of which is  $\text{CaO}-5\text{CaO} \cdot 3\text{Al}_2\text{O}_3-\text{CaF}_2$  with a number of strong deoxidizers. The new flux was called ZhN. Testing welds produced with the application of ZhN flux has shown good results (Fig 2). When researching, nickel plates, 5, 7, and 10 mm thick were used; butt, lap, and tee weldings were performed. Metallographic research disclosed that weld metal is, in this case, compact, without pores, crack, gas or slag inclusions (Fig 3). The method of nickel welding with agglomerated flux can be highly recommended. There are 2 tables, 3 photographs and 6 references, 4 of which are Soviet and 2 English.

Card 2/2

ASSOCIATION: Zhdanovskiy metallurgicheskiy institut (Zhdanov Metallurgical Institute)

S/135/61/000/004/005/012  
A006/A101

AUTHORS: Bagryanskiy, K. V., Candidate of Technical Sciences, Kuz'min, G. S.  
Pavlyuk, S. K., Engineers

TITLE: New Electrodes for Manual Arc Welding of Nickel

PERIODICAL: Svarochnoye proizvodstvo, 1961, No. 4, pp. 22 - 23

TEXT: Conventional H 10 (N 10) and H-37 (N-37) electrodes for manual welding of nickel do not assure sufficiently high and stable strength of weld joints. Therefore the authors attempted to develop efficient and cheap electrodes with satisfactory technological properties, producing high-quality weld joints. The thermodynamical calculation of metallurgical processes in the welding of nickel and a great number of experimental data were used as basis of investigations carried out at the welding department of the Zhdanov Metallurgical Institute and the Berdichev "Progress" Plant. As a result the new "Progress 50" electrodes were developed with acid type coatings, containing titanium dioxide, fluorine concentrate, sodium fluoride, manganese, titanium powder, aluminum powder, bentonite and sodium silicate. The composition of the electrode coating is available at request. The electrodes are intended for manual electric arc

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New Electrodes for Manual Arc Welding of Nickel

S/135/61/000/004/005/012  
A006/A101

welding of N-1 nickel by GOST 849-56 and of NP-1, and NP-2 nickel by GOST 492-52. The electrodes can be manufactured by pressing or dipping. The thickness of the coating is for 3, 4 and 5 mm diameter electrodes 1 - 1.2; 1.2 - 1.3 and 1.3 - 1.5 mm respectively. The electrodes permit welding in any position with d-c of reverse polarity. Recommendations are given as to welding condition and, preparation of edges for welding. The electrodes assure easy excitation and stable burning of the arc, satisfactory formation of the weld joint, having no pores, cracks and gaseous or slag inclusions, and showing corrosion resistance equal to that of the base metal. The electrodes are recommended for the manufacture of important nickel structures. There are 4 tables and 3 figures. ✓

ASSOCIATIONS: Zhdanovskiy metallurgicheskiy institut (Zhdanov Metallurgical Institute) (Bagryanskiy, and Kuz'min); Berdichevskiy zavod "Progress" (Berdichev "Progress" Plant) (Pavlyuk)

Card 2/2

S/184/61/000/005/006/009  
D041/D113

AUTHORS: Bagryanskiy, K.V., Candidate of Technical Sciences; Kuz'min,  
G.S., Yagodin, P.P. and Pavlyuk, S.K., Engineers.

TITLE: Electric arc welding of nickel.

PERIODICAL: Khimicheskoye mashinostroyeniye, no. 5, 1961, 40-42

TEXT: The welding department of the Zhdanovskiy metallurgicheskiy institut (Zhdanov Metallurgical Institute), in cooperation with the workers of the Zavod "Progress" ("Progress" Plant), has developed and introduced an automatic, semi-automatic and manual electric-arc welding method of NP-2 (NP-2) nickel permitting composite welds to be obtained. The production of the XH -1 (ZhN-1) ceramic flux proposed by the institute and of the Прогресс-50 (Progress-50) electrodes developed by the authors was started at the electrode shop of the "Progress" Plant. The article contains a detailed description of the above-mentioned methods used for welding the parts of a mixing device. The casing was made of NP-2 nickel 500 mm in diameter and 3,000 mm long with welded flanges and pipe junctions. The casing walls were 10 mm

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Electric arc ...

S/184/61/000/005/006/009  
D041/D113

thick, and the pipe junctions 6 mm. The mixer consisted of a steel pipe with a 3 mm nickel coating. A **TC-17M** (TS-17M) automatic welding machine the ZhN-1 flux, and an **HN-2** (NP-2) electrode wire on the flux pad with direct current of additive polarity were used for welding. A **PC-500** (PS-500) transformer served as feed source, and the flux granulation was 1.5-2.0 mm. The circumferential seams were welded using a **T-22** (T-22) welding manipulator and a **TC-17M** (TS-17M) tractor mounted on a special arrangement. The nickel pipe junctions were welded to the casing by a **PN-5** (PSH-5) semi-automatic machine using NP-2 wire 2.5 mm in diameter. In this case, the flux granulation was 0.8-1.3 mm. The welds were examined and tested under a hydraulic pressure of 2 gage atmospheres. They were tight, with neither cracks nor gas or slag inclusions. Corrosion tests in a caustic soda solution were carried out at 500°C for 50 hours. Good results were obtained. It is concluded that the use of the above-mentioned methods for manufacturing nickel devices permitted high-quality weld joints to be obtained. There are 1 figure and 3 tables.

Card 2/2



26191

S/125/61/000/005/011/016

A161/A127

1.2390 1573

AUTHORS: Bagryanskiy, K. V., Kuz'min, G. S.

TITLE: ZhN-1 ceramic flux for the automatic and semi-automatic welding of nickel

PERIODICAL: Avtomaticheskaya svarka, no. 5, 1961, 79 - 85

TEXT: Information is given on welding techniques and the chemical composition of the ceramic ZhN-1 (ZhN-1) flux developed during 1956 - 1960 by the Department of Welding Practice of the Zhdanovskiy metallurgicheskii institut (Zhdanov Metallurgical Institute). It was empirically found that the nickel weld metal has to be alloyed with  $0.5 \pm 1.5\%$  Si,  $1.0 \pm 2.0\%$  Mn,  $0.3 \pm 0.6\%$  Ti and  $0.4 \pm 0.8\%$  Al. The approximate chemical composition of ZhN-1 flux is the following: 7 - 9% CaO, 14 - 16%  $Al_2O_3$ , 50 - 55%  $CaF_2$ , 18 - 20%  $SiO_2$ , 5 - 6%  $Na_2O$ , 4 - 5% Mn, 1.5 - 2.0% Ti, 5.5 - 6.5% Al,  $\pm 0.05\%$  S,  $\pm 0.05\%$  P. The flux is intended for the automatic and semiautomatic arc welding of the standard nickel grades H-1 (N-1), H-2 (N-2) (per GOST 849-56) HN-1 (NP-1) and HN-2 (NP-2) (GOST 492-52). The electrode wire may be of same metal, or HMu-2.5 (NMu-2.5) (GOST 1049-41). The flux composition has to be recalculated to exclude metalloids Mn in case of NMu-2.5 wire. The flux

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ZnN-1 ceramic flux for the automatic weld...

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gives a very stable arc despite a high content of fluoride compounds. The weld metal produced with it is fully sound, the seams well shaped, the slag crust is easily removable. The information includes detailed technological recommendations concerning the bevelling of base metal edges, diameter of electrode wire to be used for different base metal thickness (from 5 to 12 mm), welding speed, voltage, gap widths. A nomogram is given for the approximate selection of the welding current and voltage for different base metal thickness and wire diameters. The preparation of the flux is described. It is simple and easy to organize at a small plant. Reference is made in this connection to publications on the production of ceramic fluxes [Ref. 7: K. K. Koranov, D. M. Kosharenko, "Svarkomasha promyshlennosti", no. 9, 1957; Ref. 8: A. S. Chesnokov, "Svarkomasha promyshlennosti", no. 9, 1957]. Automatic hidden arc welding of nickel with ZnN-1 flux is now being used at the Moskovskiy zavod NIKHIMMASH (Moscow NIKHIMMASH Plant) and the "Progress" Plant in Berdichev. A vacuum ladle with 10 mm wall, welded of NP-2 nickel is shown in a photograph as an example of work produced with ZnN-1 flux. There are 5 figures, 6 tables and 8 Soviet-Russ references.

ASSOCIATION: Zhdanovskiy metallurgicheskii institut (Zhdanov Metallurgical Institute)  
SUBMITTED: October 31, 1960

Card 2/2

L1588

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12300

AUTHORS: Bagryanskiy, K.V., and Kuz'min, G.S.

TITLE: The chemical composition and structure of welds on commercial nickel

PERIODICAL: Avtomaticheskaya svarka, no. 11, 1962, 30-36

TEXT: Results are presented of submerged-arc welding experiments on standard НП-2 (NP-2) nickel with the use of NP-2 electrode wire, ceramic ЖН-1 (ZhN-1) flux, and additions of Mn, Si, Al and Ti. The effect of the contents of different alloying elements, the conditions of the welding process, and, particularly, of the arc voltage on the weld metal structure was studied. The use of copper backing for the removal of heat had a structure-refining effect. Heating of joints to 700-800°C with subsequent air cooling made the metal structure fine and disoriented, thus providing for high mechanical properties and corrosion resistance; but heating of the welds and narrow zone of adjacent metal with gas burners to only 250-300°C

Card 1/2

The chemical composition .....

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and following air cooling had also a good effect. It is recommended (1) to weld with 30-34 v, (2) to alloy welds with about 1% Al and 1% Ti, and (3) to use the shortest possible arc. The article includes photomicrographs, the chemical composition of the NP-2 nickel grade and that of the ZhN-1 flux. There are 4 figures and 2 tables.

ASSOCIATION: Zhdanovskiy metallurgicheskiy institut (Zhdanov Metallurgical Institute)

SUBMITTED: December 11, 1961

Card 2/2

AM4006615

BOOK EXPLOITATION

S/

Bagryanskiy, Konstantin Vladimirovich; Kuz'min, Gennadiy Sergeyevich

Welding of nickel and its alloys (Svarka nikelya i yego splavov) Moscow, Mashgiz, 63. 0163 p. illus., biblio. 6000 copies printed.

TOPIC TAGS: nickel, nickel alloy, nickel alloy welding, automatic welding, manual welding, welding rod, welding flux, welding arc, arc welding

PURPOSE AND COVERAGE: The book contains basic information on the properties of nickel and some of its alloys. It deals with the most significant physical and chemical processes and structural changes which occur when these metals are welded, and with structural features of nickel welded joints. Data are presented on compositions of welding rods, electrode coatings, fluxes, and other currently used materials for nickel welding. The existing technologies of manual and mechanized welding are reviewed, and the Soviet experience in the manufacture of chemical apparatus made of nickel and its alloys is also reported. The book is based on research nickel-welding carried out by the authors in the laboratory of welding of the Zhdanovskiy metallurgicheskiy institut (Zhdanov Metallurgical Institute). It also reflects experience in commercial applications of new nickel

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welding methods. The authors were helped in their research by the welding faculty of the Zhdanovskiy metallurgicheskiy institut, the "Progress" plant in Berdichev, the "Bol'shevik" plant in Kiev, NIIKhIMMASH, and others. The book is intended for scientific workers, engineers, and technicians working in the field of welding.

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SUB CODE: IE, MA, ML

SUBMITTED: 29Jun63

NR REF SOV: 060

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S/125/63/000/003/008/012  
A006/A101

AUTHORS: Bagryanskiy, K. V., Kuz'min, G. S., Tokiy, N. N.

TITLE: Welding nickel with low-carbon and stainless steels

PERIODICAL: Avtomaticheskaya svarka, no. 3, 1963, 70 - 72

TEXT: The following three methods are used to weld internal nickel facings with steel bodies in chemical equipment. 1) Single-pass overlap welding (Figure 4a); 2) two adjacent welds are covered by a coating joint (4b); 3) each sheet is welded tightly to the preceding sheet so that the second weld covers the first weld (4c). Manual arc welding of low carbon steel MCt.3 (MSt.3) and stainless steel 1X18H9T (1Kh18NGT) is performed with UJ-9 (TsL-9), 3HTV-3 (ENTU-3), and other electrodes, on d-c of reverse polarity. Electrode diameter is 3, 4 and 5 mm; welding current is 100 - 130; 140 - 170 and 170 - 210 amps, respectively. For automatic and semi-automatic electric-wave welding of nickel with low-carbon and stainless steels the Zhdanov Metallurgical Institute has developed a special ceramic (ZhN-2) flux, yielding high-quality joints without any defects. Welding is performed on d-c of reverse polarity with a short arc.

Card 1/2

Welding nickel with low-carbon and stainless steels

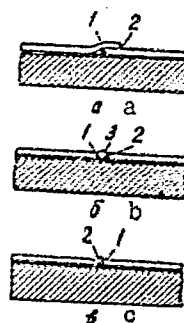
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Electrode wire EN-05X19H9T (Sv-05Kh19H9T) or EN-08X19H9T (Sv-08Kh19H9T) may be used. The mechanical properties of the weld metal, obtained by the aforementioned methods are 50.0 - 52.3 kg/mm<sup>2</sup> tensile strength; 21.5 - 39.5% elongation, and 19.0 - 22.5 kgm/cm<sup>2</sup> impact strength. Laboratory and industrial tests show the high reliability of the nickel-steel welds and their economical advantage. The methods are recommended for the manufacture of chemical equipment. There are 4 figures and 2 tables.

ASSOCIATION: Zhdanovskiy metallurgicheskiy institut (Zhdanov Metallurgical Institute)

SUBMITTED: August 14, 1962

Figure 4. Sequence of welding nickel facings on steel parts



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CITER SOURCE: Sb. nuchn. tr. "hdanovsk. metallurg. in-t, vyp. 10, 1964, 98-107

T. 11. 1. 1. metallurg. metallworking, welding, etc.

Metallurgical Ins-

SUB CODE: MM, IE

ENCL: 00

Card 1/1

TOKIY, N.N.; KUZ'MIN, G.S.; BAGRYANSKIY, K.V.

Electric arc welding of monel. Atom. svar. 17 no. 10241-46 0:64  
(MIRA 18:1)

1. Zhdanovskiy metallurgicheskiy institut.

KUZ'MIN, I.

The crop will prove it. Zemledelie 24 no.12:73 D '62.  
(MIRA 16:1)

1. Starshiy agronom Gatchinskogo territorial'nogo proiz-  
vodstvennogo upravleniya.

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KUZ'MIN, I., polkovnik, kand. filosofskikh nauk

Struggle of the new with the old in the development of military  
affairs. Komm. Vooruzh. Sil 4 no.8:40-45 Ap '64.

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